997404 85/63

Price List

Maintenance Equipment Console

for a

STATOTHR

[redacted] Coordinatograph System

Price

[redacted] STAT

Maintenance Equipment Console STATOTHR

(as described in [redacted]
specifications dated 5 October 1964)

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Prices quoted are [redacted] and are subject to change without notice. Terms are net 30 days. Delivery can be made within 75 days after receipt of order.

DECLASSIFICATION REVIEW BY NIMA / DoD

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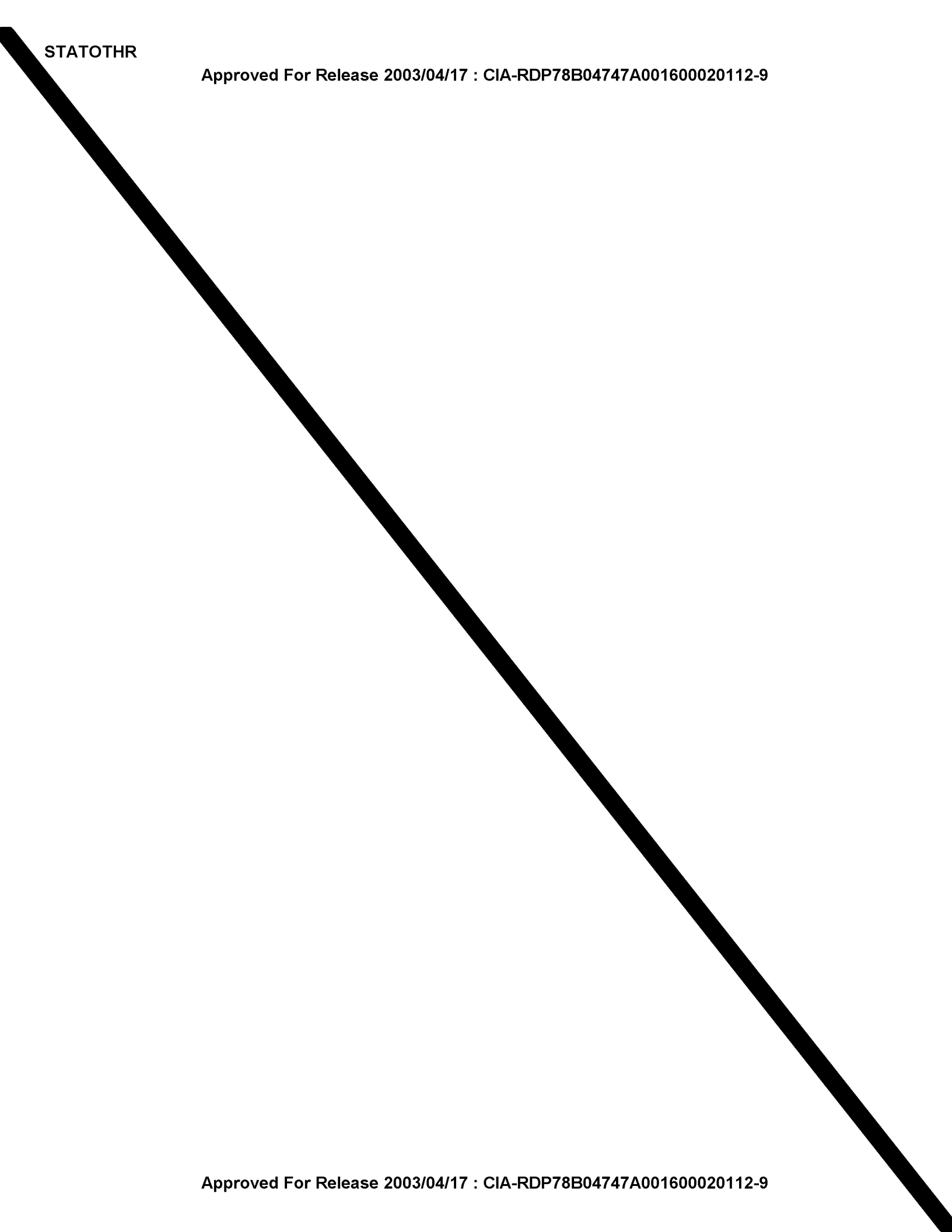
[redacted]

1 February 1965 ILLEGIB

[redacted]

3 cent



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SPECIFICATIONS
MAINTENANCE EQUIPMENT CONSOLE
STATOTHR for a
[redacted] COORDINATOGRAPH SYSTEM

STATOTHR

[redacted]

5 October 1964

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MAINTENANCE EQUIPMENT CONSOLE

A. General

These specifications describe a standard test and maintenance equipment console for a [redacted] Precision Digital Coordinatograph System. The unit consists of a wheeled cabinet containing all the special tools and equipment necessary with additional space provided to house the standard tools and equipment needed for normal test and maintenance of the system. It is entirely self-contained and may be operated independently of any of the other system components. It may be moved easily from one location to another on its large rubber-tired casters.

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The following paragraphs describe the features of the unit, the operation of the system in testing the coordinatograph, and the specific components which make up the unit.

B. Description of the Console

The standard console is shown in Figure 1. It consists of an equipment rack approximately two feet square and six feet tall, mounted on large casters. The cabinet is painted to match the coordinatograph system cabinets and uses similar switches, controls, etc. The rack contains all necessary DC power supplies, a special test panel to facilitate tests of each of the electronic module types used in the system, a complete oscilloscope, a multiple pulse source, standard signal sources, adjustable loads, and ample space for extra equipment, such as a precision volt-ohm-milliammeter, test leads, tools, and other auxiliary equipment.

As shown in Fig. 1, at the top of the unit is a small panel with the power on-off switch, pilot light, power-supply voltmeter, and selector switch. Below the top panel is the oscilloscope. This is a general-purpose unit using plug-in amplifiers for both horizontal and vertical channels. The specific time-base unit and vertical amplifiers supplied with the unit are designed to provide the functions needed in testing a [redacted] system, but

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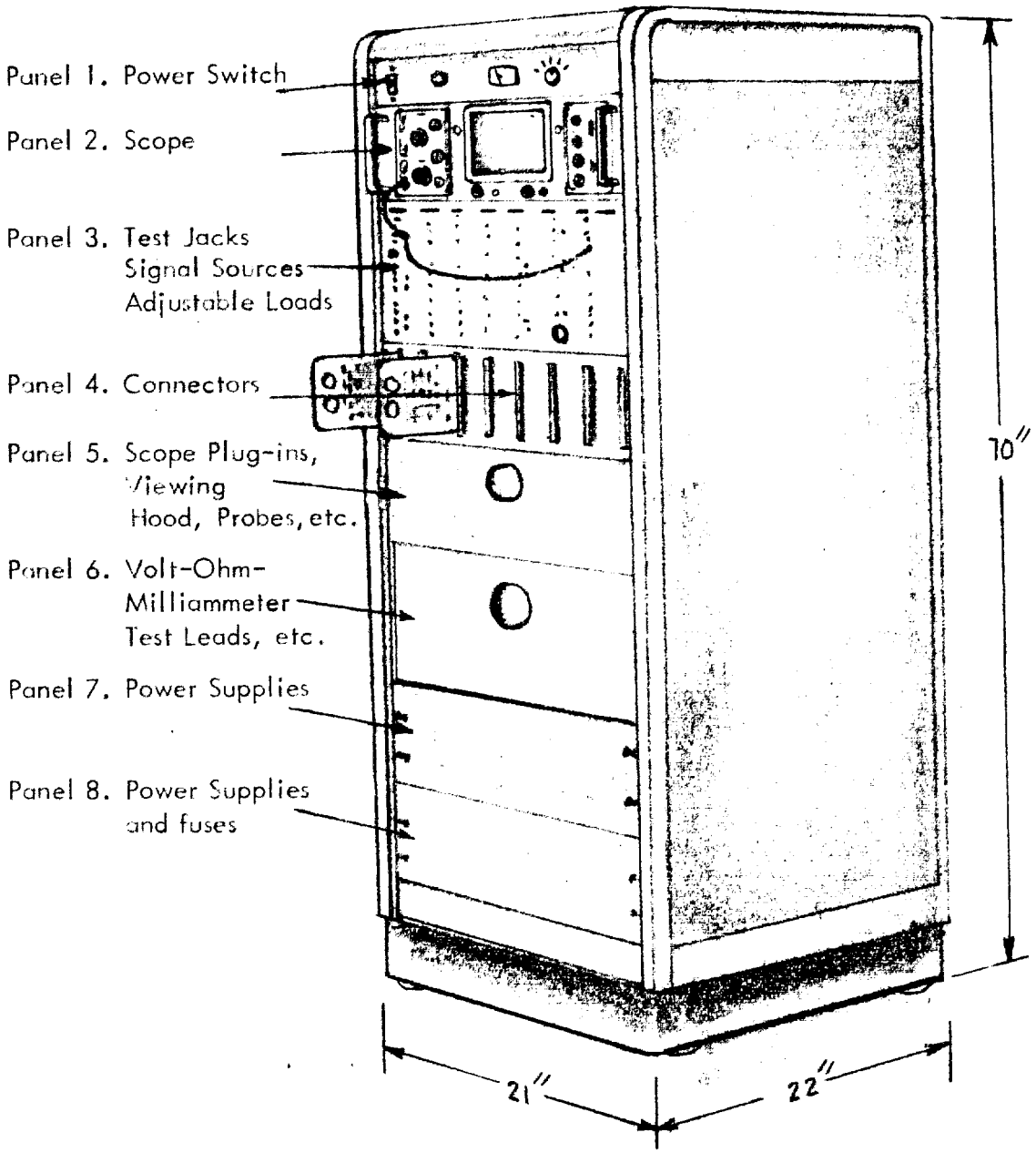

Fig. 1 MAINTENANCE EQUIPMENT CONSOLE

any other functions may be added later by substituting other plug-in units. Mounted below the oscilloscope is a jack panel containing test jacks and switches, by which modules under test may be interconnected, connected to the oscilloscope, and supplied with test signals. This panel also contains terminals and controls for the multiple pulse source and the dummy loads. Below the jack panel is a panel containing test sockets prewired for the circuit modules of the coordinatograph system. In the middle of the rack are two drawers for convenient storage and transport of loose items such as test leads, the multimeter, and extra plug-in amplifiers for the oscilloscope.

C. Operation of the Console

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There are three main functions which the unit is designed to perform in the test and maintenance of a [redacted] system. First, the oscilloscope and multimeter may be used independently in the normal manner for measuring and testing the units of the system while they are in place and in normal operation. Second, individual boards of the system may be tested under standard-signal conditions by plugging them into the appropriate socket and applying the desired signals from the jack panel while observing the circuit response by means of the oscilloscope. Third, several circuit boards may be interconnected by means of the jack panel to build circuit combinations such as decade counters and shift registers and the entire combination may be driven with standard signals while its operation is observed.

The first type of test operation is carried out in exactly the same manner as it would be with a separate oscilloscope. Enough long test leads are supplied with the unit to reach any desired point in the system. In the second type of test, in which an individual board is placed in the unit, the board under test is entirely accessible for examination since the sockets are flush with the panel. In addition, all input and output pins are connected to jacks on the jack panel to facilitate test connections for standard input-output tests. This mode of operation is used to locate a specific trouble on a board which has been found to be faulty in whole-system tests. Since all of the support equipment power supplies are adjustable, operating margins and sentitivity to power variations are easily determined. The third mode of operation, in which multi-circuit subsystems are plugged

together for test is used in those few stubborn situations in which a board seems to test correctly by itself, but fails to operate correctly in the system. In this situation, it is convenient to test the questionable board under conditions which approximate those it experiences in the system.

The jack panel and test sockets provide enough connections to build up any three or four-board unit. Such combinations as bi-directional decade counters, shift registers, and chronizers may be patched together with a combination of the standard-board sockets and the general-purpose sockets. The entire assembly may then be operated as a unit.

D. Specific Test Equipment

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The maintenance equipment is an assembly of standard and special test equipment designed to facilitate the diagnosis and repair of troubles in any [ ] system. It consists of an equipment rack containing power supplies, standard sockets wired to accept the [ ] modules used in the system, a rack-mounted oscilloscope, a multimeter, and assorted test leads, probes, and connectors. The maintenance equipment console is a self-contained assembly, entirely independent of all other system assemblies.

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1. Power Supplies

Power supplies are included to provide adequate current capacity for the heaviest loading combination of modules which can be inserted in the unit for test. These power supplies provide the following direct voltages:

(1) + 20 volts
(2) - 20 volts
(3) + 6 volts
(4) - 6 volts
(5) + 48 volts
(6) + 84 volts
(7) +191 volts

The system operates from a 110-volt, single-phase, 60-cycle line.

2. Test Sockets

Test sockets are provided for standard circuit modules of the system. A pre-wired socket is provided for each of the following general module types:

(1) Flip-flop module
(2) AND module
(3) OR module
(4) Gate module
(5) Emitter-follower module
(6) Nixie-driver module

Each pre-wired test socket has all normal power connections and interconnections permanently installed and all normal input and output pin terminals are connected to properly labeled test jacks mounted adjacent to the test socket.

Two general-purpose sockets are provided in addition to the above pre-wired sockets. each general-purpose socket has all standard power connections pre-wired and all other usable pin terminals connected to adjacent test jacks.

3. Oscilloscope

The oscilloscope is a rack-mounted unit, [redacted] Model RM561A or equal, STAT STAT equipped with a Cathode Ray Tube #T561, one dual-trace preamplifier, [redacted] Model 3A1 or equal, one differential amplifier, [redacted] Model 2A63 or equal, STAT STAT and one Time Base Unit, [redacted] Model 2B67, or equal. The unit is equipped with necessary auxiliary equipment including two 10X and two 1X probe assemblies and one viewing hood. The oscilloscope is modified only to the extent necessary to facilitate its use in the Maintenance Equipment Console. Such modifications will not interfere with its use as a general-purpose instrument.

4. Test Panel

A test panel is provided containing jacks and switches as follows:

a. Power supply voltages: Each power supply voltage is available on the test panel.

b. Assertion and Negation: Five test jacks and switches are provided for DC assertion and negation levels. Each switch controls the signals on its associated jack as follows: when the switch is in the center position, a standard -6 volt negation level appears at the jack; when the switch is in the up position a standard +6 volt assertion level appears at the jack. When the switch is thrown to the down position, which has a spring return to center, a single standard assertion pulse appears at the jack.

c. Multiple Pulse Source: A pulse oscillator is provided having standard assertion pulses at selectable rates from 10 cps to 100 kcps.

d. Dummy Load: Jacks and switches are provided which permit circuits under test to be loaded by at least ten selectable values of resistance and/or capacitance from 100 ohms to 10K ohms, and from 100 to 10,000 picofarads. Additional jacks and screw terminals are provided so that any desired external loads may be connected to modules under test.

5. Volt-Ohm Milliammeter

A volt-ohm-milliammeter, [redacted] Model 267 or equal, is included. STAT

6. Equipment Space

Drawers or cabinets are provided for storage of two oscilloscope plug-in units, the volt-ohm-milliammeter and probes, viewing hood, test leads, etc.

7. Test Leads

A set of plug leads for interconnections of circuits under test is supplied. The leads fit the signal and test jacks of the equipment and the terminals of the oscilloscope. The set consists of at least the following leads:

Number	Length
12	8 inches
12	20 inches
6	36 inches

8. Manual

An auxiliary instruction manual is provided to assist personnel in using the maintenance equipment console for troubleshooting. The manual includes procedures for setup and test of the circuit boards on the console together with sample waveforms at key test points.

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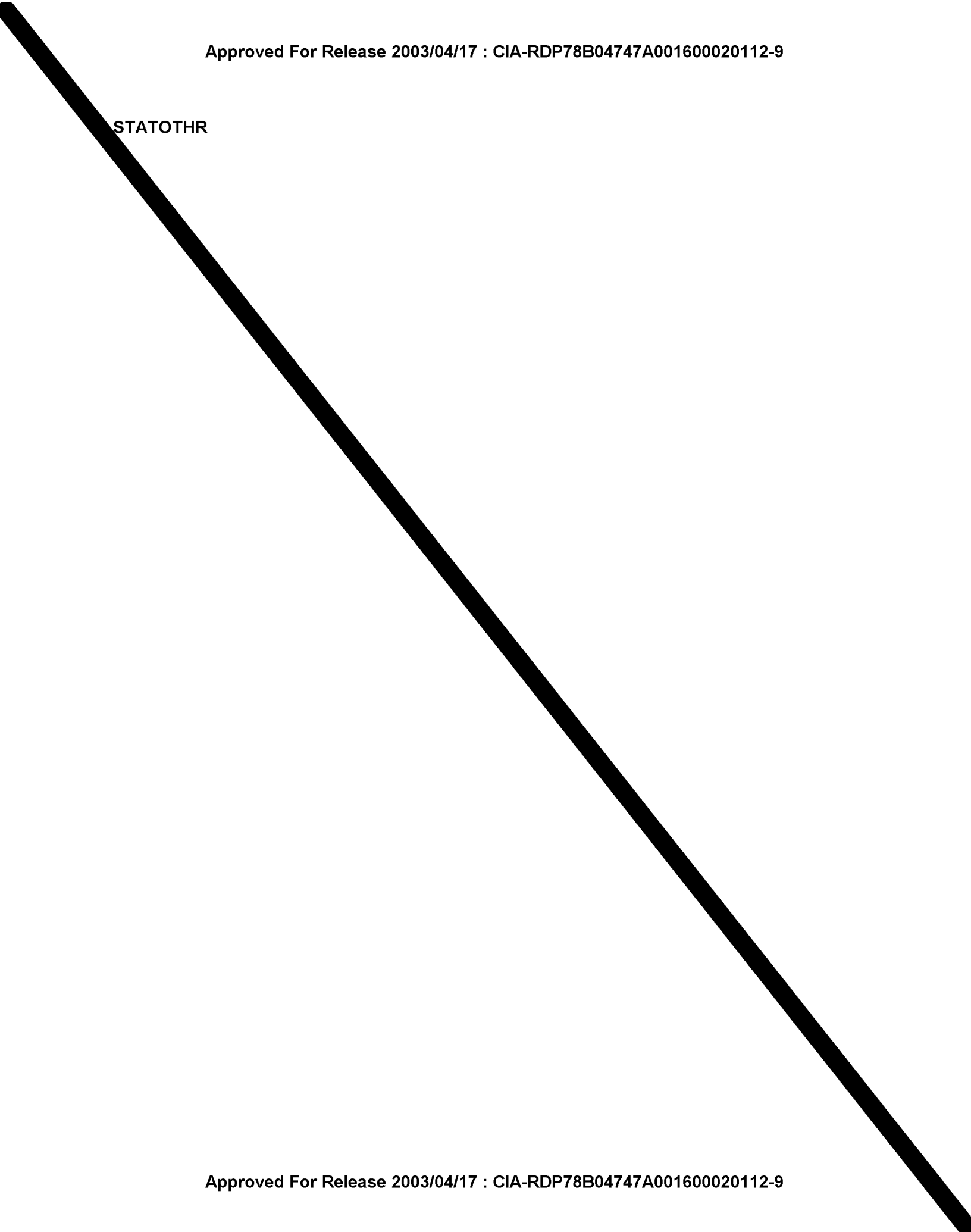

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[redacted] is an engineering firm specializing in the development and manufacture of automatic systems utilizing advanced Computation, Control, Electronics and Instrumentation techniques

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